MASSACHUSETTS WETLANDS RESTORATION NEWS

The Newsletter of the Partnership to Restore Massachusetts Wetlands

Wetlands Restoration & Banking Program **Massachusetts**
Executive Office of Environmental Affairs
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From the Director...

With nearly two years under our belts, the Wetlands Restoration & Banking Program (WRBP) already has gained a wealth of experience. The articles that follow attest to the ambition we have for this program and the progress we have made. Over the next few years we will begin to see a net gain in wetlands area and function as a direct result of our efforts. Perhaps the most important lessons to date are that wetlands restoration doesn't happen over night and that it is an immensely complicated undertaking about which we have limited information and experience.

Wetland losses in Massachusetts have occurred through many individual actions over three centuries. These losses, along with urbanization and other land use practices such as waste water discharges and pesticide usage, have contributed to the degradation of our watersheds. While a single wetland loss may have little or no measurable effect at the watershed level, collective losses have had significant impacts on the water quality, flooding, and fisheries and wildlife habitat of our watersheds. It will take many individual wetland restoration actions, and careful attention to other land use decisions, to repair these damages. Each restoration project will take many years to design, permit, implement, monitor, and evaluate long-term results. The time will vary, depending on the type of wetland restored, from 2-4 years for salt marshes to a minimum of 6-10 years for red maple swamps.

Wetlands restoration is a complex business where success cannot be guaranteed at any given site. While there has been a great deal of experience nationwide in wetlands restoration (e.g., prairie potholes and wildlife impoundments), very little of it is in Massachusetts and very little of it has been documented in any meaningful way to evaluate long-term success. Choosing restoration sites based on watershed considerations is truly at the cutting edge of environmental science. It simply has not been done.

There will be many successes and some failures. Each experience will contribute to our knowledge base and help us hone our techniques. Working within the Partnership to Restore Massachusetts Wetlands lets us share that experience with everyone involved in the business of restoring wetlands including the Fish & Wildlife Service, Natural Resources Conservation Service, Army Corps of Engineers, conservation commissions, land trusts, and state agencies. Using each restoration project to add to our knowledge base will lead to fewer failures and better results. We're beginning on the strongest science base available to us. Massachusetts will have much to add to the science of wetlands restoration in the years to come.

We have only just begun a very long process; each wetland restored will make an important contribution to the overall goal of healing our watersheds.

Christy Foote-Smith

The Partnership To Restore Massachusetts Wetlands

At the initiation of WRBP, six federal and two state agencies signed the "Resolution to Restore

Massachusetts Wetlands" on June 1, 1994. The "Resolution", which commits the U.S. Environmental Protection Agency, the U.S. Departments of Agriculture, Transportation, Commerce, Interior, and the Army, and the Massachusetts Executive Offices of Environmental Affairs and Transportation & Construction to working together, formed the basis for *[Continued on next page.]* establishing a broader "Partnership to Restore Massachusetts Wetlands". The Partnership is open to government agencies, non-profit organizations, academic institutions, businesses, and individuals - virtually anyone who wishes to support the Resolution.
To implement the Resolution, WRBP developed an Action Plan and hosted the first Annual Meeting of the Partnership to Restore Massachusetts Wetlands in June of this year to get feedback. Central to the Action Plan is an Action Agenda for 1995/96 which calls for piloting the watershed approach for wetlands restoration planning developed by WRBP (See adjacent article.), establishing a monitoring and research program, creating a wetlands restoration data base, and developing a wetlands restoration outreach program. Attendees participated in afternoon discussion groups and reported their recommendations for finalizing and implementing the Plan. A summary of each discussion group can be found on pages 10-11 of this newsletter.

The Action Plan was positively received. WRBP has taken steps to implement the Action Agenda, including convening a Coordinating Committee, continuing implementation of the Neponset Watershed Wetlands Restoration Plan pilot project, and organizing an interagency wetlands restoration site evaluation team to conduct on-site assessments of potential wetlands restoration projects.

The Coordinating Committee will report its progress toward implementing the Action Agenda at the second annual meeting of the Partnership next spring. Annual Partnership meetings will provide technical and practical how-to information through presentations, workshops, and displays to both aspiring and experienced wetlands restorers.

A major benefit of the Resolution and the Partnership has been the many collaborative projects that have been initiated. Several examples are highlighted in this Newsletter such as the Cape Cod Wetlands Evaluation Project, the Neponset Wetlands Restoration Pilot Project, and the Sagamore Marsh Restoration Project. Each of these initiatives involves several partners. Wetlands restoration can be accomplished only through the combined efforts of many people.

The over 100 agencies, organizations, and individuals that have already joined the Partnership to Restore Massachusetts Wetlands are listed on page 13 of this Newsletter. If you wish to join them by declaring your support for Massachusetts wetlands restoration, fill out the Partnership form on page 14 and return to WRBP. No fee or financial commitment is required. Copies of the "Resolution to Restore Massachusetts Wetlands" and the draft "Action Plan" may be obtained by contacting WRBP.

Watershed Wetlands Restoration Plans

The Wetlands Restoration & Banking Program was formed under the presumption that we can restore wetlands better by considering their role as integral components of watershed systems rather than treating them as unconnected landscape features. An initial task has been to develop a method for identifying and evaluating wetlands restoration sites that can contribute to improving watersheds. At the request of WRBP, the Army Corps of Engineers, New England Division, has prepared a report entitled "Massachusetts Wetlands Restoration Study: Site Identification and Evaluation Report". The study, conducted under the Corps' Section 22 Planning Assistance to States Program, presents a five-step process for identifying, evaluating, and selecting wetlands restoration sites within watersheds which is diagrammed below.

DIAGRAM

Wetlands Restoration Site Selection Process

[Continued on next page.]

WRBP will use the site selection method to guide development of Watershed Wetlands Restoration Plans WWRP). Conservation commissions, watershed associations, other environmental and civic groups, municipal officials, state and federal agencies, businesses, academic institutions, and private citizens are invited to participate in the watershed planning process to identify wetlands restoration goals relating to water quality, flooding, and fisheries and wildlife habitat and to help select wetlands restoration sites that can contribute to those goals. The WWRP will contain information on the condition of the watershed and its wetlands that can be used for land use planning and management purposes beyond wetlands restoration. In addition, it will provide step-by-step guidance on how to implement wetlands restoration projects, including potential funding sources and technical information. WRBP will work with watershed communities to put the plan into effect.

WRBP has begun to test the planning process and the site selection method in the watersheds of the Neponset, Paskamanset, Shawsheen, Upper Ipswich, and Otter Rivers. In each watershed, town-by-town maps are being prepared using Geographic Information Systems (GIS) technology, in preparation for public planning meetings to be held this winter and spring. WRBP is working with DEP's Office of Watershed Management (OWM) to incorporate the WWRPs into OWM's Watershed Management Plans. OWM staff are working cooperatively with WRBP to identify and evaluate wetlands restoration sites, especially those projects that can contribute to improving water quality degraded by stormwater runoff. These projects will provide a prototype for incorporating wetlands restoration planning into broader watershed planning efforts by the Executive Office of Environmental Affairs. WRBP's goal is to develop a Watershed Wetlands Restoration Plan for every watershed in the Commonwealth and to continue assisting communities, agencies, organizations and individuals in the implementation of restoration projects.

Copies of the Corps' report can be obtained by calling or writing WRBP.

Wetlands Banking Update

According to an Army Corps of Engineers report issued in 1989, wetlands replication projects in Massachusetts experienced a 36 percent failure rate. The WRBP Advisory Committee (AC), a broad-based group representing diverse interests, was appointed in May 1994 to explore the question of whether wetlands mitigation banking can improve wetlands mitigation success in Massachusetts and contribute to the state's goal of "no net loss of wetlands".

A wetlands mitigation bank is a site where wetlands are restored and/or created expressly for the purpose of providing compensatory mitigation in advance of authorized, unavoidable impacts to similar resources. Because banking mitigates for numerous individual wetland conversions, compensation sites are likely to be larger and more likely to be functionally viable - hydrologically and biologically. In addition, banked compensation wetlands can achieve functional success in advance of the wetland impacts for which they are to mitigate, as opposed to the current practice of after-the-fact mitigation; and they can be continuously monitored and managed to assure the continuing production of the replaced wetland functions.

On August 22, 1995, the AC issued its report regarding wetlands mitigation banking. Recommendations

included implementing several pilot wetlands banks in order to further explore their potential and investigating other methods of improving mitigation success (for example, more detailed technical requirements and better training for consultants and regulators). The AC has recommended that preference be given to wetlands restoration over wetlands creation. Restoration sites have supported or still do support wetlands, improving the chance of successful mitigation. The AC recommended that pilot bank sites be chosen from potential wetlands restoration sites identified in Watershed Wetlands Restoration Plans so they can contribute to addressing cumulative as well as site-specific wetland impacts. Secretary Coxe has accepted the recommendations and implementation is already underway.

Contact WRBP to receive a copy of the wetlands banking report.

Funding Highlights

This section of the Newsletter focuses on funding sources for restoration planning, construction, and monitoring. A comprehensive list of wetlands restoration funders can be obtained from WRBP.

Partners for Wildlife

by Bob Scheirer
U.S. Fish & Wildlife Service

The U.S. Fish & Wildlife Service's Partners for Wildlife Program (PFWP) has been active in Massachusetts since 1992 and has been a partner with the Massachusetts wetlands restoration initiative since its inception. The philosophy behind PFWP is simple: offer financial and technical assistance to restore altered and degraded wetlands and other habitats, and landowners will participate. During a time of increasing scrutiny and downsizing of federal government programs and funding, the PFWP has survived because it is founded on voluntary cooperation with landowners who want to restore habitats. When the program was slated to be eliminated by Fiscal Year 1997, the Clinton Administration received such an outpouring of support for the program from Partners around the country that full funding was restored.

PFWP concentrates on restoring drained, altered, or degraded freshwater and saltwater wetlands; riparian (streamside) habitats; the habitats of endangered and threatened species; uplands; and fish habitat. Areas that are particularly suitable for freshwater wetland restoration include ditched or drained farm fields, pastures, or other "wet spots." Salt marsh restoration is accomplished in areas where fill or spoil material was placed on the wetland, culverts and roads restrict tidal flushing, or salt marshes were grid-ditched for mosquito control. Riparian restoration is accomplished by fencing off streams to keep out domesticated animals, mainly cattle, and providing alternate sources of water for livestock, or by plantings.

Habitat restoration generally requires little or no financial commitment from private landowners. Large projects involving private organizations and governmental agencies are cost-shared in some manner; the group provides dollars or in-kind services such as labor and materials. Restored habitats are subject only to a simple agreement that the landowner will maintain the restoration for a specified period of time, usually ten or more years. There are no easements taken, or deed recordings necessary. Control of the land remains with the landowner.

A variety of projects have been funded by the PFWP in Massachusetts. In cooperation with the Essex County Mosquito Control Project, dozens of acres of grid-ditched salt marsh on the North Shore have been restored by using Open Marsh Water Management. Towns such as Ipswich, Rowley, and Marion joined the program to restore their salt marshes. Endangered species habitat restoration and grassland and savannah restoration in the Berkshires and Martha's Vineyard have been accomplished in partnership with the Nature Conservancy and The Trustees of Reservations. In cooperation with WRBP, the PFWP soon will help fund restoration of wetlands degraded by tidal flow restrictions associated with transportation crossings on Cape Cod.

The Partners For Wildlife Program is a valuable asset in restoring Massachusetts wetlands and hopefully will

form many more productive partnerships in the future. To contact the program for information or assistance for your project, call or write Mr. Bob Scheirer, U.S. Fish & Wildlife Service, 22 Bridge Street, Concord, NH, 03301, (603) 225-1411.

Wetlands Reserve Program

by Rick DeVergilio
Natural Resources Conservation Service

The Wetland Reserve Program (WRP) is a voluntary land use management program administered by the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). It offers landowners an opportunity to receive payment for protecting and restoring wetlands that have been altered through agricultural activity. Under WRP, perpetual easements are purchased from landowners and restoration costs are covered by USDA.
[Continued on next page.]
This is the first year WRP was available to Massachusetts landowners and a sign-up was held during June. The 1995 sign-up generated sixteen applications. However, only four have met land eligibility requirements: sites must have areas that have been altered or degraded through agricultural activities and the areas must be restorable. The four potential WRP sites are all within Western and Central Massachusetts, and total about 50 acres. The four proposals have been ranked by NRCS staff in Massachusetts and submitted to NRCS National Headquarters where the final decision will be made on acceptance. If accepted, each site then will be formally appraised for its agricultural easement value, and if that is acceptable to the landowner, details of the easement and restoration will then be drawn up and finalized.

The Wetland Reserve Program is a key part of the Clinton Administration's efforts to develop partnerships with landowners to preserve wetland resources, and it is very popular with the current Congress in that it is voluntary and it compensates landowners for protecting wetlands. In view of this, it is certain WRP will be available for 1996. The exact dates of the 1996 sign-up period are not yet know; but NRCS will provide notification at that time.

Coastal Pollutant Remediation Program

Massachusetts Coastal Zone Management has announced the availability of grants of from $10,000 to $40,000 for remediation of identified transportation-related nonpoint source pollution. This can include restoration of coastal and inland wetlands if related to remediation of a nonpoint pollution problem. Any town in the Coastal Watershed is eligible to apply. This year the application deadline is December 8, 1995. Questions and requests for application materials can be directed to Steve Barrett, CPR Grants Coordinator, Massachusetts Coastal Zone Management, 100 Cambridge Street, Boston, MA 02202, (617) 727-9530.

WRBP Preparing Restoration Guide

Most people want to see our wetlands restored and many people would like to help but don't know how. There is a role for everyone who cares about our wetlands to help restore these valuable resources. Taking its cue from a recommendation made at the First Annual Meeting of the Partnership to Restore Massachusetts Wetlands, WRBP is in the process of preparing a "Guide to Restoring Massachusetts Wetlands". This guide is intended to empower everyone who wishes to participate in this important endeavor - from landowners and scout troops to farmers and businessmen - by providing both general and specific how-to information. There will be step-by-step guidance for restoring inland and coastal wetlands. For those who want to restore wetlands, but just don't know where to begin, this booklet will help.

There are many stages to successful wetlands restoration projects. Knowing what is involved, in advance, will ensure proper preparation for the restoration work and proper follow up when the restoration is completed. This booklet will provide guidance on topics such as how to identify wetlands restoration sites, how to get community support, how to work with wetland

landowners, how to get funding, the elements of an effective monitoring plan, and how to ensure long-term protection of the restored wetland. It will contain specific information about restoring certain types of wetlands and about common wetlands restoration techniques. Since no book can contain all the information needed, this guide will provide an extensive resource guide to agencies and organizations and a comprehensive bibliography.

Look for an announcement of availability of the "Guide to Restoring Massachusetts Wetlands" in the coming months.

WRBP Convenes Phragmites Advisory Group

WRBP has visited and evaluated dozens of potential wetlands restoration sites over the past two years. The most prevalent type of wetlands restoration problem encountered is the invasion and dominance of coastal and freshwater marshes by common reed (*Phragmites australis*). The species favors disturbed sites where the soils have been excavated, fill has been placed, or pollutants are being discharged.

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Phragmites often invades salt marshes that have become brackish or fresh due to a restriction of tidal inundation associated with an undersized culvert, bridge abutment, tidegate, or other constriction. Reduction in tidal flow lowers the salinity of the marsh creating unfavorable conditions for salt marsh vegetation. *Phragmites* cannot tolerate the salinity of a normal salt marsh environment. Therefore, restoration usually requires returning the marsh to a more normal tidal regime.

Phragmites is a controversial plant because *Phragmites* wetlands do provide some wetland functions. Restoring a *Phragmites*-dominated marsh means altering an existing wetland to reestablish a prior wetland type. (We call this a Type 2 wetlands restoration - restoring functions to an existing wetland. Type 1 wetlands restorations involve sites where there was formerly a wetland but no functions remain.) Massachusetts local, state, and federal wetlands regulators have little experience making these tradeoffs and there are many questions about what may be lost and gained.

WRBP has prepared a technical paper summarizing what is known about *Phragmites* and its management. A copy may be obtained by calling or writing WRBP. While this information is useful, it is not sufficient for developing a statewide strategy for dealing with this significant environmental issue. Consequently, WRBP convened a group of wetlands scientists and public and private land managers to identify the impacts to wetlands of *Phragmites* and to help formulate a strategy for addressing the problem in Massachusetts.

At its first meeting, the WRBP Phragmites Advisory Group identified a number of key issues, including the following:

* What are the causes of *Phragmites* invasion?
* Under what circumstances is *Phragmites* a problem that needs to be controlled and when should it be left alone?
* When is *Phragmites* the problem and when is it the symptom of a larger problem?
* When is *Phragmites* a problem for wildlife and when is it a benefit?
* What types of control work best and which are most cost-effective?
* Do certain *Phragmites* marsh restorations warrant preferred treatment in the regulatory process?
* Do we have adequate information to make responsible management choices?

The Phragmites Advisory Group will continue to meet to develop a guidance document and to discuss whether additional steps are needed, such as an administrative policy or regulatory changes to facilitate restoration of native plant communities.

WRBP Cooperative Projects

This section of the newsletter will provide information on wetlands restoration projects that the WRBP has been supporting. Future issues will show progress on these and other projects. Stay tuned...

Sagamore Marsh Update

by Matthew Walsh
Army Corps of Engineers

At the request of the Executive Office of Environmental Affairs and in cooperation with WRBP, the Army Corps of Engineers is investigating the feasibility of restoring salt marsh and estuarine habitat at Sagamore Marsh in Bourne and Sandwich. The Corps is authorized to perform the investigation by Section 1135 of the Water Resources Development Act of 1986 (PL 99-662), as amended, entitled "Project Modifications For Improvement of the Environment". Section 1135 states, in part:

"The Secretary [of the Army] is authorized to review the operation of water resources projects constructed by the Secretary before the date of enactment of this Act to determine the need for modification in the structures and operations of such projects for the purpose of improving the quality of the environment in the public interest."
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The purpose of the study is to identify the feasibility of and alternatives for restoration of up to approximately 185 acres of former salt marsh within identified constraints. The constraints are that restoration cannot increase the flooding potential of homes and septic systems, cannot impact the water quality of water supply wells, and cannot impact navigation in the Cape Cod Canal.

Sagamore Marsh lies on the north side of Cape Cod at the Canal's east end in the towns of Bourne and Sandwich. The east end of the Canal is protected from accretion of littoral material by two breakwaters which extend into Cape Cod Bay. The former Scusset River flowed into Cape Cod Bay north of the present location of the north breakwater, and provided tidal flushing to the salt marsh. Accretion of littoral material behind the north breakwater, along with the disposal of dredged material in the marsh area adjacent to the Canal in conjunction with the expansion of the Canal in the mid-1930s, likely contributed to the reduction in tidal flows to the marsh. The reduction in tidal flows has transformed the salt marsh into a predominantly fresh-brackish water marsh system that has led to the invasion and eventual dominance of *Phragmites australis* (common reed).

A 48-inch culvert was constructed in the mid-1930s at the south end of the marsh to drain runoff from the marsh into the Canal, and a 48-inch culvert was later constructed beneath the Scusset Beach Road when that road was constructed. The culverts are not adequate to provide sufficient tidal flushing to support typical salt marsh plants or to function more fully as an estuarine wetland.

The study is examining various alternatives to restore salt marsh and estuarine habitat by increasing the amount of tidal inflow to the now tidally restricted marsh. An incremental analysis of project costs and benefits is being performed in order to identify the recommended alternative. The study, which includes an Environmental Assessment of the considered alternatives, is being coordinated with numerous local, state, regional and Federal agencies.

Various alternatives which satisfy the study constraints, including the "No Action" alternative, are being

examined in order to determine the recommended plan. Project modifications which are being considered include replacing the existing degraded 48" culverts beneath the Cape Cod Canal Service Road and Scusset Beach Road with larger culverts, installing self-regulating tide gates and back-up sluice gates for flow control, and maintenance dredging of the 1300-foot long man-made channel at the southern end of the marsh to its appropriate original grade.

The draft feasibility study report and draft environmental assessment/environmental impact report are scheduled to be completed in December 1995. At that time, a public meeting will be held to present the draft findings, and the reports will be circulated for public comment before being finalized.

Cape Cod Wetland Evaluation Underway

by Barbara Blumeris
Army Corps of Engineers

In 1994, the U.S. Army Corps of Engineers, the Massachusetts Executive Office of Transportation & Construction (EOTC), the Executive Office of Environmental Affairs Wetlands Restoration & Banking Program, Massachusetts Coastal Zone Management, and the Cape Cod Commission initiated a planning assistance study of six tidal wetland sites on Cape Cod. The study is being conducted under the Corps Planning Assistance to States program, authorized under Section 22 of the Water Resources Development Act of 1974, and in cooperation with the Coastal America Partnership. This initiative promotes multi-agency (federal and non-federal) partnering of resources to conduct studies and implement projects to achieve desired environmental protection and restoration goals.

Many tidal wetlands on the Cape have been impacted by construction of transportation crossings (dikes, bridges, and culverts associated with roads and railroads). These crossings may restrict the natural tidal flow to a
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site, resulting in a decrease or elimination of the natural salt water flooding of the wetland. The reduction of tidal flooding can cause a decrease in soil salinity, thereby creating conditions that promote the growth of a tall grass - common reed (*Phragmites australis*). This plant has invaded many sites in eastern North America and is generally considered a nuisance species of low ecologic value.

Six sites on the Cape were investigated to determine if the tidal flow has been restricted and to evaluate the changes in wetland vegetation. The six sites selected for study are:

1) Bridge Creek Wetland, Barnstable, 74 acres
2) Freemans Pond Wetland, Brewster, 24 acres
3) Bridge Street Wetland, Dennis, 57 acres
4) Cold Storage Road Wetland, Dennis, 12 acres
5) Route 6 Wetland, Eastham, 25 acres
6) Kildee Road Wetland, Harwich, 17 acres

From the six sites, two have been chosen that offer the best potential for restoration - Bridge Street wetland (Dennis) and Bridge Creek wetland (Barnstable). A report will be prepared by the Corps documenting the findings at the study sites, including the most likely method of restoring suitable tidal flows at each site. The report will be available in early 1996.

Although the Corps has no program for designing and constructing these restoration projects, it is envisioned that the state agencies and the affected towns will identify and apply for funding (including Federal Highway Administration funds) to accomplish the restorations.

Cowyards Phragmites Monitoring Project

by Ralph Tiner
WRBP

WRBP is cooperating with the Dartmouth Conservation Commission to evaluate the prospects for salt marsh restoration at the Cowyards marsh in Dartmouth. This marsh has had an increase in common reed (*Phragmites australis*) over the years due to restricted tidal flow. In 1992, a landowner improved a private road leading to his residence and as part of the project replaced an existing 15-inch culvert with a 24-inch squash culvert. This has increased tidal flow into the salt marsh over time may reduce the ongoing expansion of common reed.

Upon learning of this site in 1995, WRBP thought the situation would be worth investigating and initiated a monitoring program in the fall. Some evidence of die-back of common reed is visible - the "gray haze" (dead stems) can be seen in a couple of areas. To monitor further recession of the Phragmites, a series of stakes were placed marking the general location of its waterward limit at several points in the marsh. Vegetation data also were recorded at these locations and at a few sites in the marsh interior. These sites will serve as permanent plots and will be evaluated annually to detect any changes in the vegetation community. It may be that the increased tidal flow is still not sufficient to lead to a major improvement in the vegetation. Time and study will tell.

Other towns with similar situations and an interest in setting up a monitoring program should contact Ralph Tiner at (617) 727-9800 x636.

Barlows Landing Salt Marsh

by Ralph Tiner
WRBP

When a concerned landowner living along this marsh in the Pocasset section of Bourne became aware of the state's wetlands restoration program, he submitted a form nominating the site for restoration. WRBP visited the site and found that this marsh was suffering from erosion unlike any other marsh we've seen. Marsh creeks and ditches are expanding in size and much black marsh muck is exposed at low tide. Vegetation no longer stabilizes this material. Increased flooding and erosion seem to have worked together to kill off the original plants and prevent recolonization. WRBP suggested that the landowner discuss the matter with other residents and the conservation commission to gain support for the project. After receiving favorable support, plans can be made to pursue wetland restoration.

Meanwhile, support from the Pocasset Village Association has been secured and, interestingly enough,

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the concerned landowner has been appointed Chairman of a new committee to promote wetland restoration, not only for this marsh, but for all marshes in Pocasset. He is working presently with town officials to see if the Barlows Landing restoration project can be implemented. To date, the town's Department of Public Works has been particularly cooperative and supportive.

In examining aerial photos from the late 1940s to 1980, it is evident that the erosion has worsened. In April 1947, the main creek into the marsh began to show signs of expansion and the marsh subtle signs of erosion. The existing three-foot culvert presumably was installed in the early 1940s. According to a lifelong resident, prior to this time tidal flow was more open through a granite box culvert that one could walk through. An examination of pre-1940s aerial photos should provide additional insight into the current problem. WRBP is in the process of obtaining these photos.

Hingham Restricted Salt Marshes

by Ralph Tiner

WRBP met with representatives of the Hingham Conservation Commission to review three potential salt marsh restoration sites. All seem to be good candidates for restoration as evidenced by the dominance of common reed and apparent restricted tidal flows. Additional study needs to be done to assess the magnitude of the restriction and to design the restoration.

This visit pointed to the need to develop a rapid assessment technique for determining the magnitude of the tidal restriction. While a vegetation analysis can

easily show an impact (e.g., the dominance of common reed at the expense of salt marsh) and potential restrictions can be observed (e.g., culverts and tide gates), such observations usually do not provide sufficient information to design appropriate measures for restoring tidal flow. WRBP is pursuing development of a rapid assessment technique for evaluating the extent of tidal restriction. We welcome any suggestions that readers might offer. We recognize the need to develop a volunteer technical team to help evaluate and make restoration design recommendations for tidally restricted wetland projects (See VOLUNTEERS WANTED below.).

WRBP has suggested that the town apply for a grant to do the necessary baseline hydrologic studies. One of the marshes has a tidegate that may be managed to increase periodic salt water flooding to the marsh. Tidal hydrology may be restored readily to this wetland simply by managing the tidegate.

★ ★ ★ VOLUNTEERS WANTED ★ ★ ★

WRBP is looking for volunteers with an expertise in hydrology to assisting in evaluating tidally restricted marshes and designing hydrologic restoration. Volunteers will be part of a technical team seeking to restore Massachusetts tidal wetlands. Anyone interested or with questions should contact Ralph Tiner at (617)727-9800 x636.

EOEA and EOTC To Adopt Salt Marsh Policy

Secretary Trudy Coxe of the Executive Office of Environmental Affairs (EOEA) and Secretary James Kerasiotes of the Executive Office of Transportation & Construction (EOTC) have agreed to adopt a policy on tidally-restricted salt marshes. EOTC provided the $50,000 match needed for the Cape Cod Wetland Evaluation (See article on page 7.). It became apparent early in the study that tidally-restricted coastal wetlands are numerous and that constrictions related to transportation structures such as culverts and tidegates are a common cause. EOTC and EOEA have agreed to work together to adopt a salt marsh policy and to establish a plan for avoiding these impacts in future transportation projects and for fixing existing problems in the course of repairing and upgrading transportation facilities. A joint agency working group will begin meeting in November 1995. Look for progress reports in future editions of this newsletter.

Summary of Discussion Groups First Annual Partnership Meeting

The following is a summary from each discussion group convened at the first annual meeting of the Partnership on June 26, 1995.

A.1. Prioritizing Wetlands Restoration Projects (This group gave general feedback on how wetlands restoration projects should be prioritized by WRBP.)

The group agreed that the watershed wetlands restoration planning process provided a good first cut at identifying potential wetlands restoration projects. There should be some early demonstration projects to show that wetlands restoration works. The Action Plan lists too many priorities, and it does attempt to address potential conflicts (e.g., agriculture, lake management). Start with the easy projects.

A.2. Site Selection Methodology (This group focussed on the scientific method for identifying and evaluating sites presented by the Army Corps at the meeting.)

As participants continued to familiarize themselves with the site selection method developed for WRBP by the Army Corps of Engineers, a number of questions arose. Why is purple loosestrife invading our wetlands and what can be done about it? Of the three parameters to be used for evaluating wildlife habitat potential - diversity, quality, and connectivity - which should be given preference? How does site selection relate to the regulatory process and who will propose restoration projects? Clearly, we are still on a learning curve regarding what the method is and how it will work.

A.3. Watershed Wetlands Restoration Plans (This group gave feedback on the watershed wetlands restoration planning process presented by WRBP at the meeting.)

The bottom-up approach (involve people at the local level from the very beginning) is key. Be sure to include local businesses and help them see how they can benefit from wetlands restoration efforts. Education will be a large part of the job. Get through the planning process as quickly as possible to get to the action stage. We need to demonstrate success.

A.4. Working with Landowners (Over 75% of our wetlands are in private landownership. This group discussed how we can get them involved in wetlands restoration.)

We need to get the word out. The best way to do this is through pilot projects with "satisfied customers". Some property owners may fear that wetlands restoration will limit future use of their land. We must be prepared to compensate the owner if restoration results in lost property values. It may be hard to get conservation commissions to help due to their huge regulatory workload. Use umbrella groups to gain the ear of key audiences (e.g., the Farm Bureau may provide an entree to the agricultural community). The regulatory process may scare some people off; minimize the regulatory burden. Will get much better participation if restoration can be done at no cost to the landowner. Again, there is a need for demonstration projects to show how it can work.

A.5. Research Needs (This group discussed the need to add to our knowledge base about wetlands restoration.)

There was some discussion about the difference between monitoring and research. Monitoring provides information that can help design research. Research should be performed to help refine monitoring to determine what really needs to be monitored to evaluate functional success. Both are for the purpose of improving the success of wetlands restoration. The discussion generated many research questions including: What kind of restoration works? What kinds of wetlands are most needed in a watershed and in the state? How can we recognize a "disturbed" wetland in need of restoration? What are the characteristics of various wetlands across the state in their "normal" condition so we can compare them to restoration sites? How do we know if a site is worth restoring? Are there general landscape indicators that can help predict success? How does soil respond to restoration? A recommendation was made that a report on the history of wetlands around Boston and other heavily impacted areas would be worthwhile. It was suggested that restoring wetlands to a wetland type far down in the ecosystem succession sequence and allowing development along this gradient at its own speed may reap the best results. That is, rather than trying to establish a red maple swamp in a year, create the precursor (marsh or wet meadow) and let it evolve naturally to a red maple swamp. This is the process that has occurred in the New England landscape as wet meadows previously cleared for pasturage were abandoned.

A.6. Mobilizing Grassroots Efforts

Using a watershed approach makes sense since nearly all of the state's river basins have a citizen watershed association. Wetlands restoration should be worked into existing programs and activities that citizens are already involved in. Find as many different ways as possible to involve people. The way to get them involved is to understand and appeal to their current objectives. Support will be far more readily forthcoming if there are dollars involved. Even small grants generate great interest. Neighbors can be more effective in mobilizing neighbors. Look for ways to incorporate restoration into other local projects - flood control, water supply protection, historic preservation. Develop a "Citizen's Guide to Wetlands Restoration". Grassroots mobilization can result in broader public education and prevention of future degradation.

B.1. Program Integration

Education is the key to integrating wetlands restoration with other land use planning and management programs. As everyone scrambles to reorganize along watershed lines, scarcity of resources will force integration. Some entity should be responsible within each watershed. Wetlands restoration should be part of the open space planning process.

B.2. Restoration Sites and Watershed Data Bases

The group agreed that GIS is an important tool for

watershed wetlands restoration planning. Towns have lots of valuable data. Training and standardization of data are key to accessing this information. Important data layers include: Historical and wetland boundaries, vegetation type, digital terrain, soils, ground water elevations, point source discharges, stormwater discharges, dams, floodplain boundaries, water quality information, location of septic fields, anadromous fish runs, and permitted culverts.

B.3. Regulatory Issues

Existing state wetland regulations allow for wetlands restoration. Key questions are: What is the original state of the resource you are trying to restore? What is the purpose of the project? Who is the applicant? Regulatory impediments to wetlands restoration projects need to be addressed. There was general agreement that the regulatory burden should be lessened and state/federal/local regulatory agencies must improve coordination. MEPA can be prohibitively expensive. MEPA thresholds should be revisited. Look into the possibility of pre-qualifying projects that have been identified through a watershed wetlands restoration plan for a shorter review process. Conservation commissions will need technical assistance to handle this new class of projects.

B.4. Public Outreach/Education

There should be a three-tiered approach to outreach.
1) Basic - within the community and general public
2) Targeted - landowners and community activists (COVERT model) to get restoration projects started.
3) Facilitation - to help facilitate planning and implementation

B.5. Monitoring for Success

Monitoring must be designed to address the goals of restoration; it must be consistent yet allow some flexibility to accommodate evolving project needs. The group generated many questions from how to fund and who will do the work to what are the best methods and what can volunteers do?

B.6. Coordinating Funding and Other Resources

A handbook with details on various funding sources is needed. There should be a coordinated technical review prior to submission for grants so that projects can better articulate goals and target the right funding sources. Watershed wetlands planning is important and there aren't enough funding sources; ask industry to fund the planning. Wetlands mitigation banking and enforcement settlements may help fund restoration through a long-term revolving fund. Work with the Attorney General's Office on the latter.

WRBP wishes to thank all those who participated in these discussions. We are already beginning to implement many of your suggestions. Your continuing support is needed. We look forward to seeing you at next year's Partnership meeting.

PARTNERSHIP TO RESTORE MASSACHUSETTS WETLANDS

Partners List

(as of 10/31/95)

Federal Agencies

Coastal America Partners
U.S. Department of Agriculture
Natural Resources Conservation Service
Agricultural Stabilization & Cons Service
Forest Service
Farmers Home Administration
U.S. Department of the Army
Army Corps of Engineers, NE Division
U.S. Department of Commerce
Natl Oceanic & Atmospheric Administration
National Marine Fisheries Service
U.S. Environmental Protection Agency - Region I - Wetlands
U.S. Department of Housing & Urban Development
U.S. Department of the Interior
Fish & Wildlife Service
U.S. Geologic Survey
National Park Service
National Biologic Survey
U.S. Department of Transportation
New England Interstate Water Pollution Control Commission

Massachusetts Agencies

Massachusetts Executive Office of Environmental Affairs
Coastal Zone Management
Buzzards Bay Project
Massachusetts Bays Program
8T&B
Shellfish Bed Restoration Program
Wetlands Restoration & Banking Program
Division of Conservation Services
State Commission on Water, Soil and Related Resources
Water Resources Commission
Department of Environmental Management
ACEC Program
Office of Water Resources
Office of Waterways
Department of Environmental Protection
Division of Wetlands & Waterways
Office of Watershed Management
Department of Fisheries, Wildlife and Environmental Law Enforcement
Division of Fisheries & Wildlife
Riverways Program
Department of Food and Agriculture
State Reclamation Board/Mosquito Control Projects
Metropolitan District Commission
Massachusetts Water Resources Authority
Executive Office of Transportation and Construction
Massachusetts Highway Department
Massachusetts Port Authority
University of Massachusetts
Urban Harbors Institute
Lowell/CCEST
Cooperative Extension Service
Berkshire County Mosquito Project

Municipal Agencies

Boston Conservation Commission
Chicopee Office of Community Development
Chicopee Conservation Commission
Dedham Conservation Commission
Easton Conservation Commission
Holyoke Conservation Commission
Lincoln Conservation Commission
Pittsfield Conservation Commission
Sterling Conservation Commission
Topsfield Conservation Commission
Westminster Conservation

Commission
Weston Open Space Planning Committee

Private Non-Profit Organizations

1000 Friends of Massachusetts
Blackstone River Watershed Association
Coalition for Buzzards Bay
Lincoln Land Conservation Trust
Massachusetts Audubon Society
Nashua River Watershed Association
Saugus River Watershed Association
Neponset River Watershed Association
Save the Bay (Rhode Island)
Westport River Watershed Alliance
Association for the Preservation of Cape Cod

Private Companies

Bestman Green Systems, Inc.
Institute for Wetland & Environmental Education & Research
U.S. Wetlands Services, Inc.

Individuals

Richard Adams
Philip Barske
Edward Blake
Doris Blondin
John Bolduc
Linda Brown
Amy Braeiwa
Faith Burbank
Nicole K. Burgher
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Judith A. Christine
Russell Cohen
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Victoria Hoffman
Ken Hoover
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Doug Lashley
Ursula Lyons
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Barbara Sullivan
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Jens Thornton
Ruth A. Toscano

PARTNERSHIP TO RESTORE MASSACHUSETTS WETLANDS

PARTNERSHIP FORM

Name_____**Title**_____
_____

Affiliation_____
_____

Address_____
_____

_____
_____

Phone__(
)_____
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I/we support the "Resolution to Restore Massachusetts Wetlands".

Please include my (check one): __agency __organization __self as a Partner in the Partnership to Restore Massachusetts Wetlands. I understand that this does not involve a commitment to a specific action or financial contribution. I/we will make implementation of the Action Plan a priority and will do everything within our power to restore Massachusetts wetlands.

Please return this form to:

Wetlands Restoration & Banking Program
100 Cambridge Street - 20th Floor
Boston, MA 02202
PHONE: 617-727-9800 x213
FAX: 617-727-2754

Wetlands Restoration & Banking Program
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, Massachusetts 02202
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